

GeoPoll Technical Report: Farm Radio International Ghana Rice production in Volta & Maize production in Brong Ahafo regions of Ghana

Introduction

Farm Radio International (FRI) commissioned GeoPoll to conduct two SMS to measure the impact of interactive rural radio (IRR) programming in the Volta and Brong Ahafo regions of Ghana. The Volta region survey focused on the cultivation of rice while the Brong Ahafo survey measured the cultivation of maize. Both of these interventions were part of FRI's New Alliance ICT Extension Challenge project funded by USAID. The report below analyses the data gathered during the two SMS surveys. Data collection occurred between November 20th and November 22nd in the two aforementioned regions.

The aim of this evaluation is to understand how the interactive radio programming in both Brong Ahafo and Volta affected uptake of various promoted practices. The sample taken allowed GeoPoll to measure the current practice of both listeners and non-listeners of the specific radio program to understand these differences.

GeoPoll is a mobile survey platform with a database of nearly 200 million users throughout emerging countries. Through relationships with mobile network operators, GeoPoll is able to conduct real-time surveys which allow research partners to overcome challenges of face-to-face surveying. GeoPoll's platform sends surveys directly to respondents through short message service (SMS) messages, enabling researchers to access hard-to-reach populations without the need for survey enumerators, with results delivered within days.

Methodology

GeoPoll utilized randomized sampling techniques in order to collect the 1,088 completes (completed surveys) across the two regions of Ghana. The Volta region SMS survey occurred between November 20th-22nd and had 563 completes. The Brong Ahafo region survey occurred between November 21st-22nd and had 488 completes. GeoPoll defines a "complete" as a respondent who answers all the necessary questions within the survey instrument they receive via SMS. SMS survey invitations are sent to the mobile phones of respondents who then voluntarily accepted the invitation and proceeded to take the survey instrument. The surveys were implemented in English, Twi, and Ewe languages. Throughout the data collection period, GeoPoll monitored and validated the data as it came in daily.

The statistical significance for the entire study conducted in the two targeted Ghanaian regions has a confidence interval of +/- 3.02% at a 95% confidence level. For the maize production-focused survey conducted in Brong Ahafo, the data described below has a confidence interval of +/- 4.44%

at a 95% confidence level. The Volta region rice production survey has a confidence interval of +/- 4.13% and a 95% confidence level.

The data below is mainly reflected below comparing listeners versus non-listeners. Depicting the data this way differs from a standard aggregate by question and rather views each radio station and non-listeners as a separate subset. By displaying the data in this fashion, the differences and similarities between listeners and non-listeners becomes more evident.

Limitations

Like all modes of survey research, SMS surveys have several limitations. Firstly, mobile user samples consist of individuals that own mobile phones and thus individuals that do not own a mobile phone due to socioeconomic reasons cannot be targeted. Similarly, respondents must to be literate to be able to participate in SMS surveys, so illiterate respondents cannot be targeted. Additionally, SMS surveys are limited to 160 characters for each message, which directly impacts the type and scope of questions that can be asked in a survey. There is no mechanism for respondents to ask for clarification on questions in SMS surveys thus questions have to be worded in a simple and basic manner to avoid misunderstandings. Lastly, SMS surveys tend to provide samples that are slightly skewed toward young males. All of these limitations were encountered during data collection in the Brong Ahafo and Volta regions of Ghana as indicated in the data below.

Media Insights

The data below reflects GeoPoll's KGMM media measurements in the two regions surveyed. Although this data was not a part of the study conducted for Farm Radio, it provides useful information on listenership in the two regions that should be considered when examining the data gathered for the two SMS surveys.

Adars FM had the highest rating in Brong Ahafo region on October 24, 2016 with over 61,000 unique listeners. The repeat show on Sunday for Adars FM had the highest audience on July 10, 2016 with 77,000 unique listeners tuning in. 73,000 listeners tuned in to Radio Bar on November, 16, 2016, an increase from 2 weeks prior where 68,000 listened.

In the Volta region, the first Sunday of November registered close to 130,000 listeners who tuned in to Volta Star Radio. Lorlornyo FM had an even audience number on October 14, 2016 (81,000 listeners) and July 8, 2016 which had 80,000 listeners. These two dates mark the highest point of listenership for Lorlornyo FM over the last six months.

Results and Observations Brong Ahafo Survey

Background

The Brong Ahafo portion of this survey focused on measuring the uptake of promoted maize practices. These practices were chosen by the FRI-Grameen Foundation consortium based on innovations outlined in the USAID/AGRA Scaling Seeds and Technologies Partnership (SSTP). All of these technologies were also chosen based on participatory formative research by FRI with the target farming communities.

Demographics

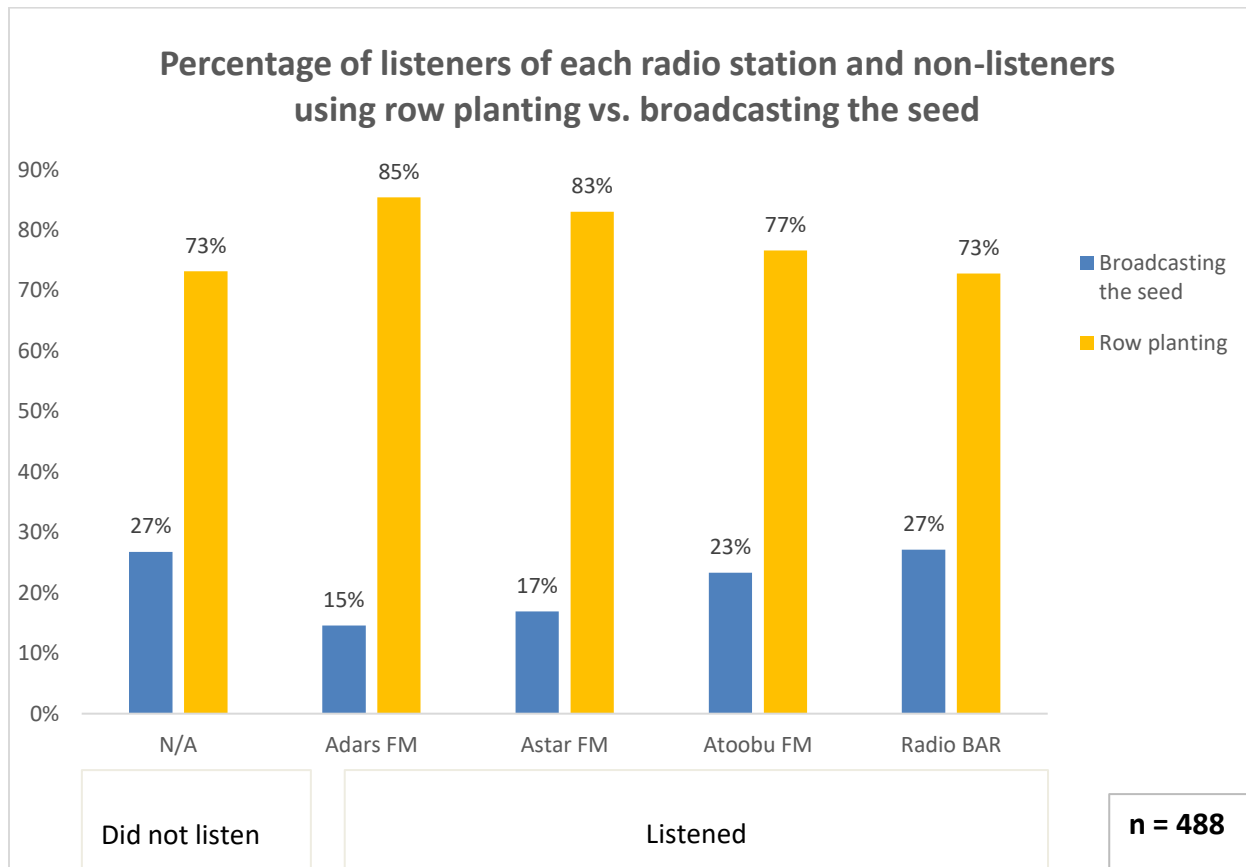
Approximately 80% of those surveyed in Brong Ahafo are male and 20% female. Out of the 488 surveys gathered, 260 respondents were in the age 18-24, while 194 were 25-35 and 34 were above the age of 35. All of the 488 surveyed farmed maize as a major crop in the past two seasons.

Overview

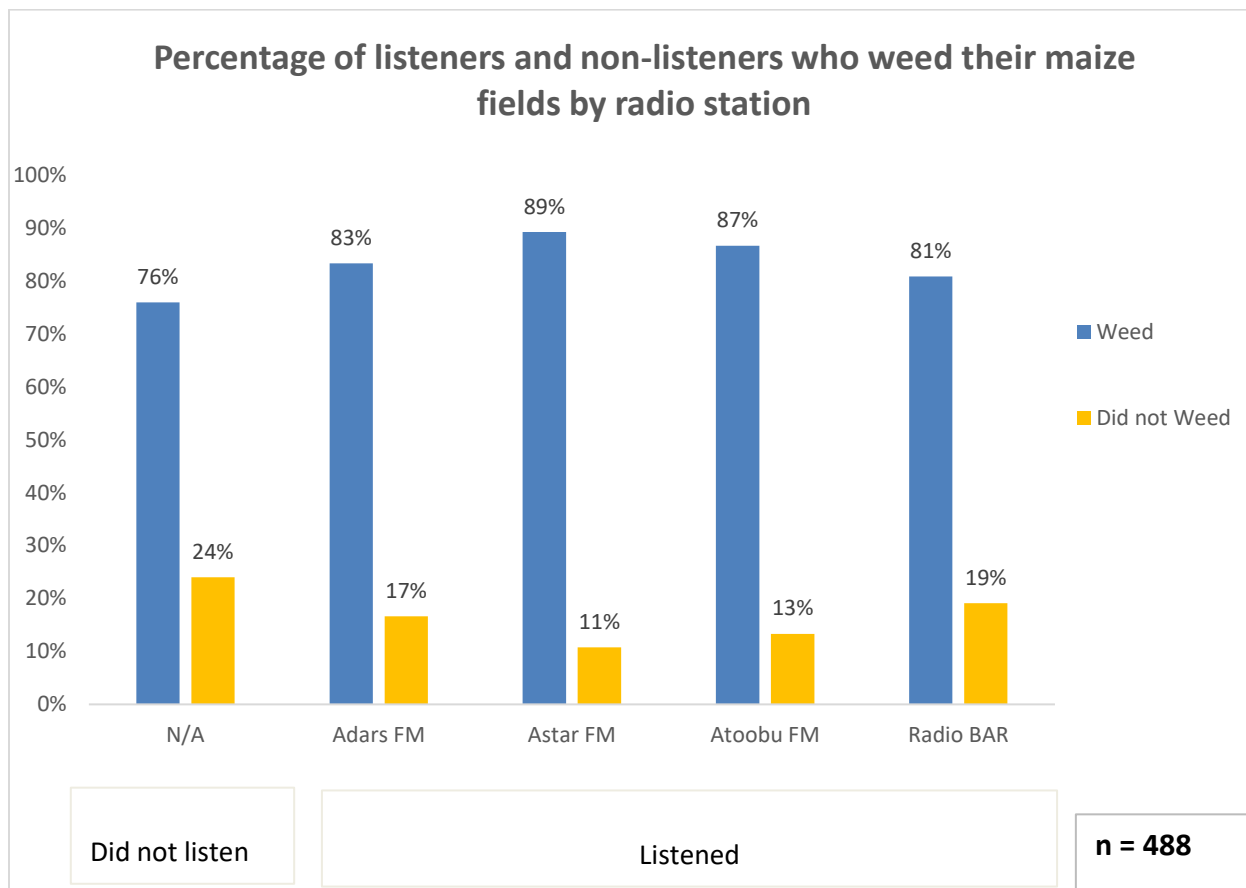
The results below reflect an SMS survey of the Brong Ahafo region in southern Ghana. The survey measured 488 respondents' answers to 21 different questions related to maize cultivation and their listenership to four distinct radio stations. The results below provide a comprehensive summary of data collected and key results of the November survey.

Detailed findings Brong Ahafo Survey

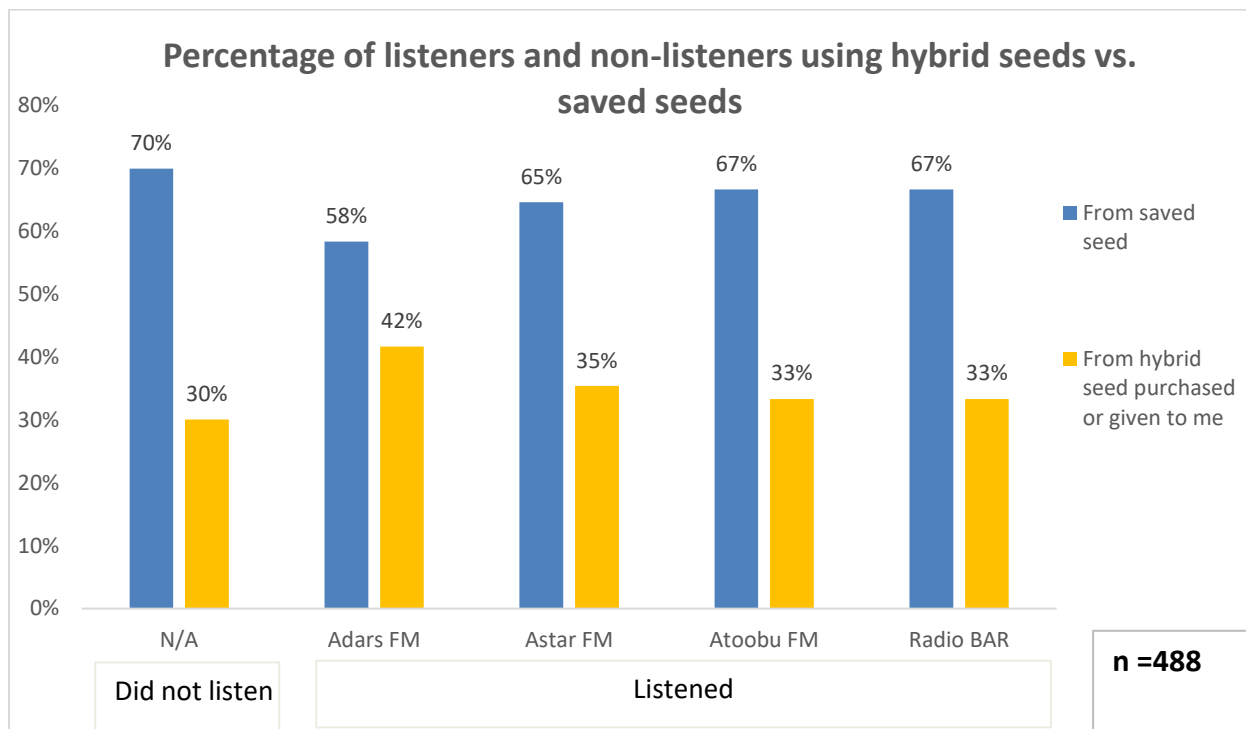
When asked what method used to plant their maize during the last season, a majority of those surveyed at 76% indicated row planting, while only 24% indicated broadcasting seeds. Approximately 85% of listeners of Adars FM and 83% of listeners of Astar FM practice row planting. For Atoobu FM, 77% of respondents practice row planting and 73% those surveyed that listen to Radio BAR practice row planting. For broadcasting the seed, Radio BAR and non-listeners had the highest proportion practicing this method at 27%, followed by Atoobu FM at 23% of listeners surveyed. The chart below reflects listenership versus non-listenership of the two planting methods surveyed. The interactive radio program promoted row planting as an improved way of planting maize. Respondents that listened to Adars FM, Astar FM and Atoobu FM all showed higher levels of row planting than those that did not listen at all.



In addition to the type of method used for planting, 81% of respondents surveyed indicated they weeded their maize fields, while only 19% indicated that they did not weed their maize fields. This result is reflected in the chart below by radio station. The most compelling result displayed below is that listeners of the radio were proportionately more likely to weed their maize fields than non-listeners.



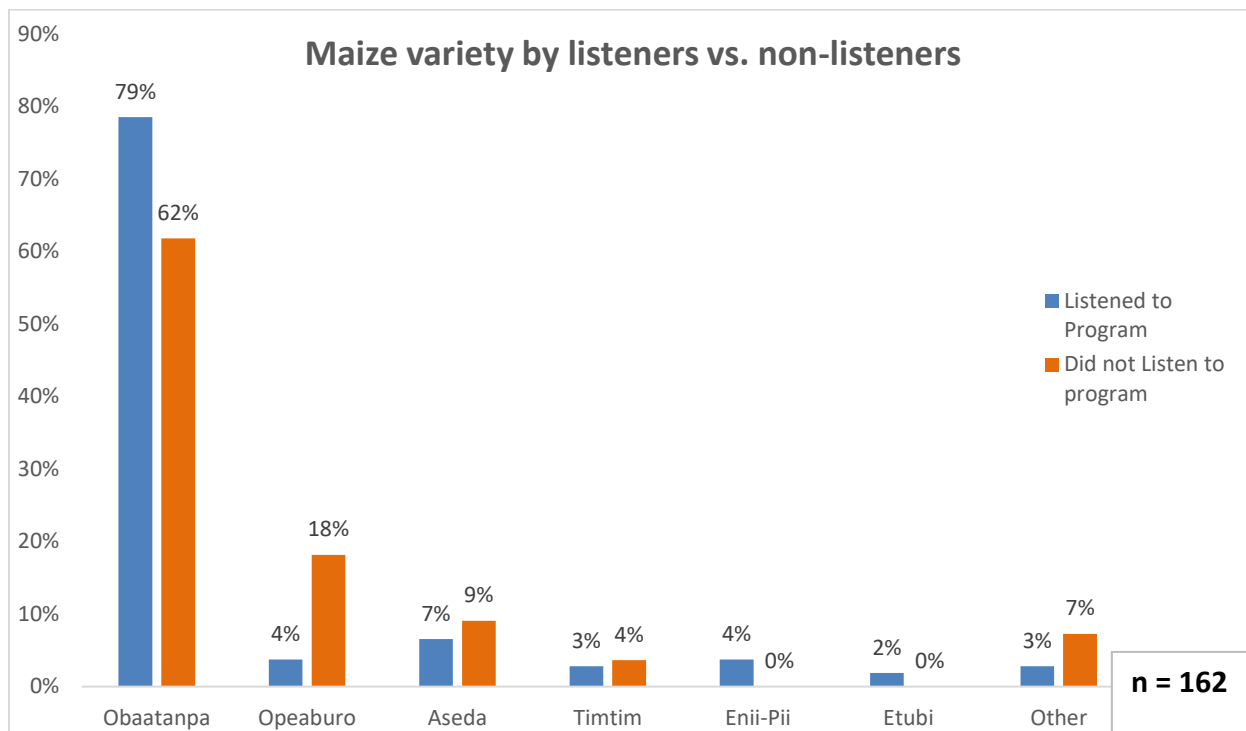
When asked “Where did you get your maize seed this most recent planting season? Reply with a number. 1) From saved seed 2) From hybrid seed purchased or given to me.” approximately 70% of those surveyed replied that they had saved their seeds, while 30% indicated they have used hybrid seeds purchased or given to them. The charts below compares the source of maize seeds to program listenership. Approximately 67% of listeners in both Atoobu FM and Radio BAR responded that they saved their seeds from last season. Similarly, 58% of respondents from Adars FM and 65% from Astar FM reported saving their seeds. There appears to be little difference between listeners of Astar FM, Atoobu FM, and Radio BAR compared to non-listeners that used hybrid seeds. Adars FM is the exception to the radio stations targeted in this study, as 42% of listeners reported using hybrid seeds purchased or given to them, while only 30% of non-listeners



When subset of 162 respondents that used hybrid seeds purchased or given to them were asked: “What type of improved maize variety did you use this most recent season? Reply with a number. 1)Aseda 2)Tintim 3)Opeaburo 4)Etubi 5)Enii-Pii 6)Obaatpana 7)Other” a large majority for broadcasting the seed (at 71%) and row planting (at 73%) selected Obaatpana.

Maize Variety	Broadcasting the seed	Row planting	Grand Total
Obaatpana	71%	73%	73%
Opeaburo	10%	8%	9%
Aseda	6%	8%	7%
Tintim	0%	4%	3%
Enii-Pii	6%	2%	2%
Etubi	0%	2%	1%
Other	6%	4%	4%
Grand Total	100%	100%	100%

The second variety that respondents indicated they used was Opeaburo at 10% for broadcasting the seed and 8% for row planting. Similarly, the top three varieties displayed above have a direct correlation with radio station listenership. The chart below displays each varieties respective listenership by radio station.



For other types of maize variety, respondents that selected “Other” were asked “What Other type of improved maize variety did you use this most recent season? Reply with a number. 1)Abontem 2)Omankwa 3)Aburoheemaa 4)Akposoe 5)Other”, approximately 7 respondents that were classified in this category selected the following:

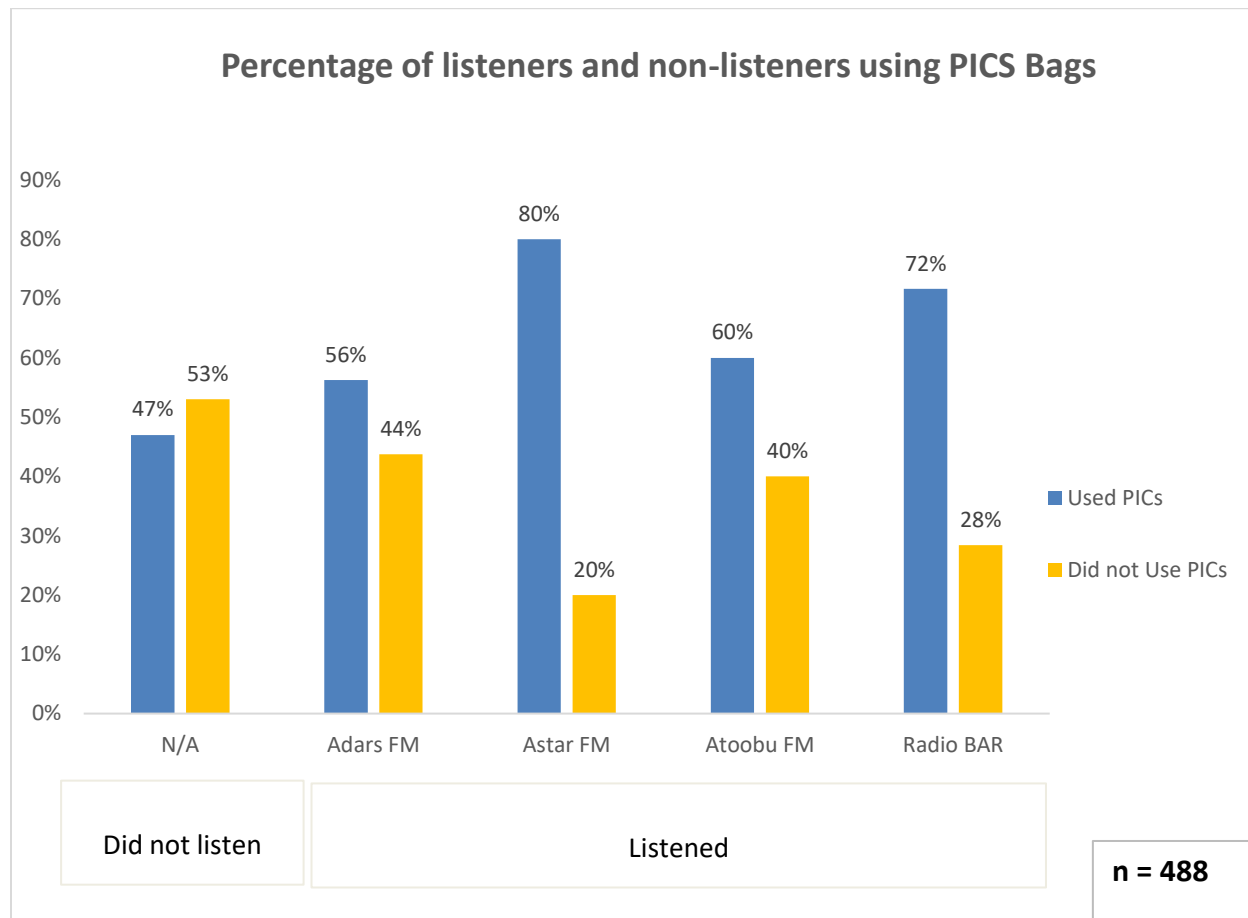
Other seed type	Broadcasting the seed	Row planting	Grand Total
Omankwa	50%	20%	29%
Abontem	0%	20%	14%
Other	50%	60%	57%
Grand Total	100%	100%	100%

When asked how they store their seeds and if PICS¹ Bags (a three-layered hermetically sealed storage bag) were used, 61% indicated they had used PICS Bags in the most recent season while 39% indicated they did not use PICS Bags.

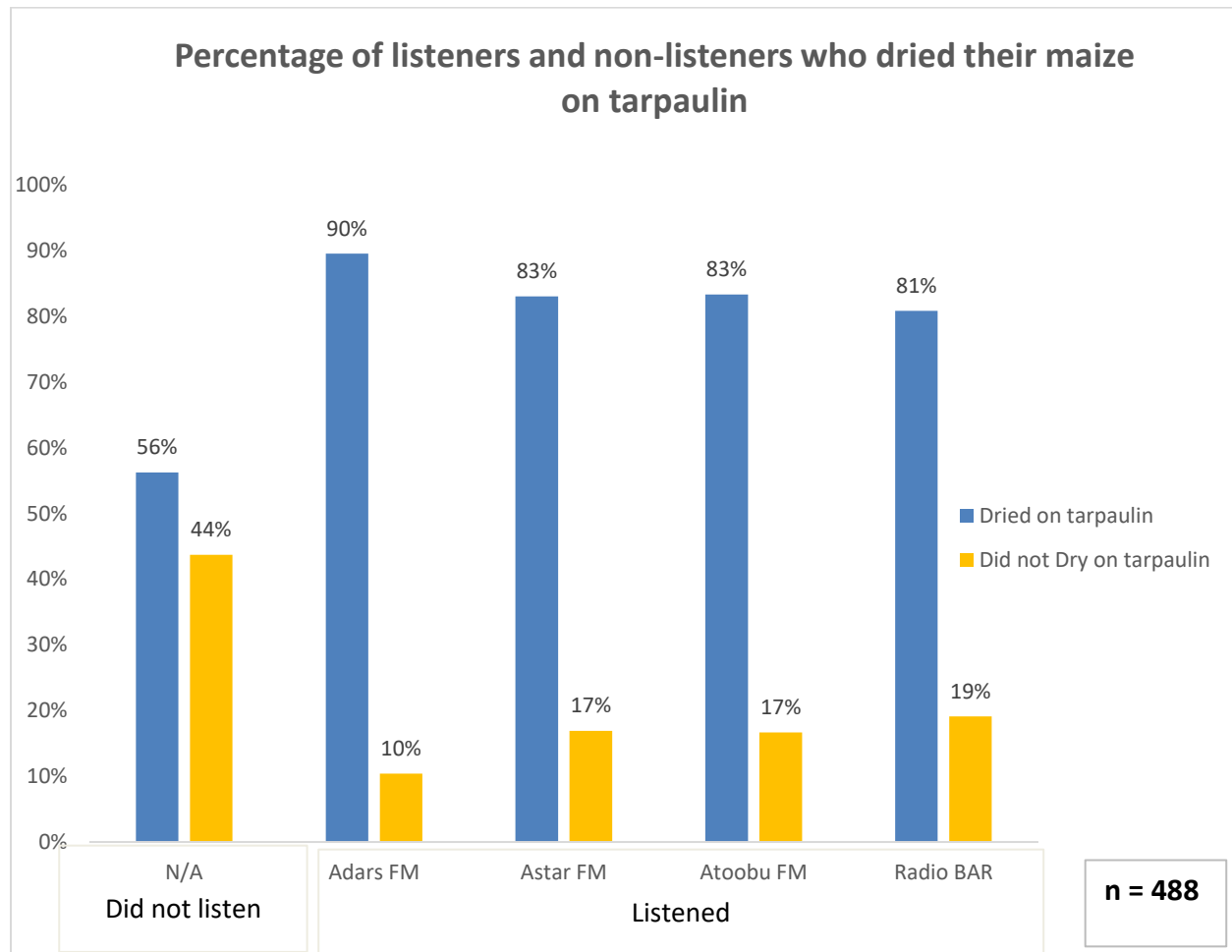
The chart below reflects listenership by radio station for those that used PICS Bags and those that did not for storing their maize seeds. For Astar FM, 80% of those surveyed used PICS Bags, while 20% did not. Approximately 72% of Radio BAR listeners surveyed used PICS Bags, while 28% did not use. Those that listened to the radio stations surveyed had a higher use of PICS Bags

¹ Purdue Improved Cowpea Storage bags. See: <https://ag.purdue.edu/ipia/pics/Pages/home.aspx>

compared to non-listeners. Astar FM and Radio BAR showed particularly high levels of practice by listeners. The chart below displays the precise breakdown by radio station and non-listeners.



When asked if they dried their maize on a tarpaulin (a promoted drying practice) during the most recent season, 73% of respondents indicated they had, while 27 percent of respondents indicated they had not. Approximately 90% of listeners on Adars FM dried their seeds on a tarpaulin and similarly, 83% of listeners on both Astar FM and Atoobu FM used tarpaulin. Furthermore, 81% of Radio BAR listeners used a tarpaulin to dry their seeds. Only 56% of non-listeners used a tarpaulin which indicates that radio station listeners were proportionately more likely to dry their maize on a tarpaulin.



Results and Observations Volta Survey

Background

The Volta portion of this survey focused on measuring the uptake of promoted rice practices. These practices were also chosen by the FRI-Grameen Foundation consortium based on innovations outlined in the USAID/AGRA Scaling Seeds and Technologies Partnership. All of these technologies were also chosen based on participatory formative research by FRI with the target farming communities.

Demographics

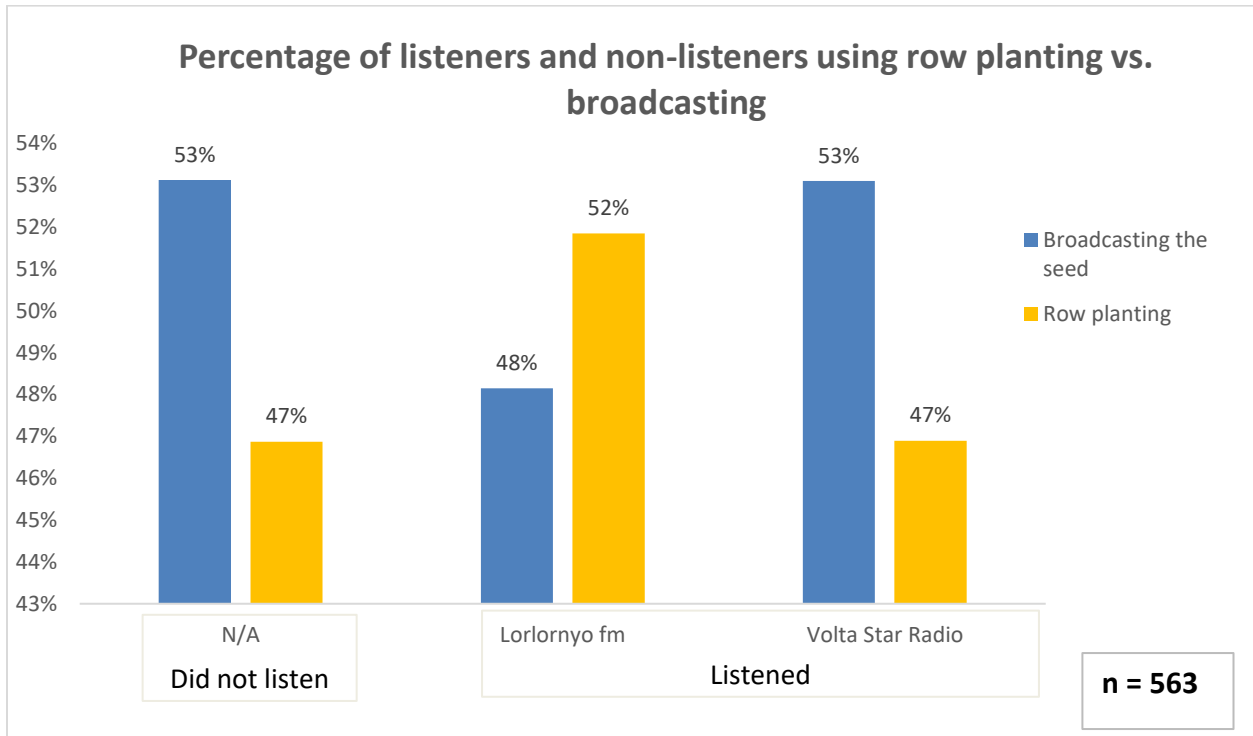
Approximately 82% of those surveyed in Volta are male and 18% female. Out of the 563 surveys gathered, 294 respondents were in the age 18-24, while 225 were 25-35 and 44 were above the age of 35. All of the 563 surveyed farmed rice as a major crop in the past two seasons.

Overview

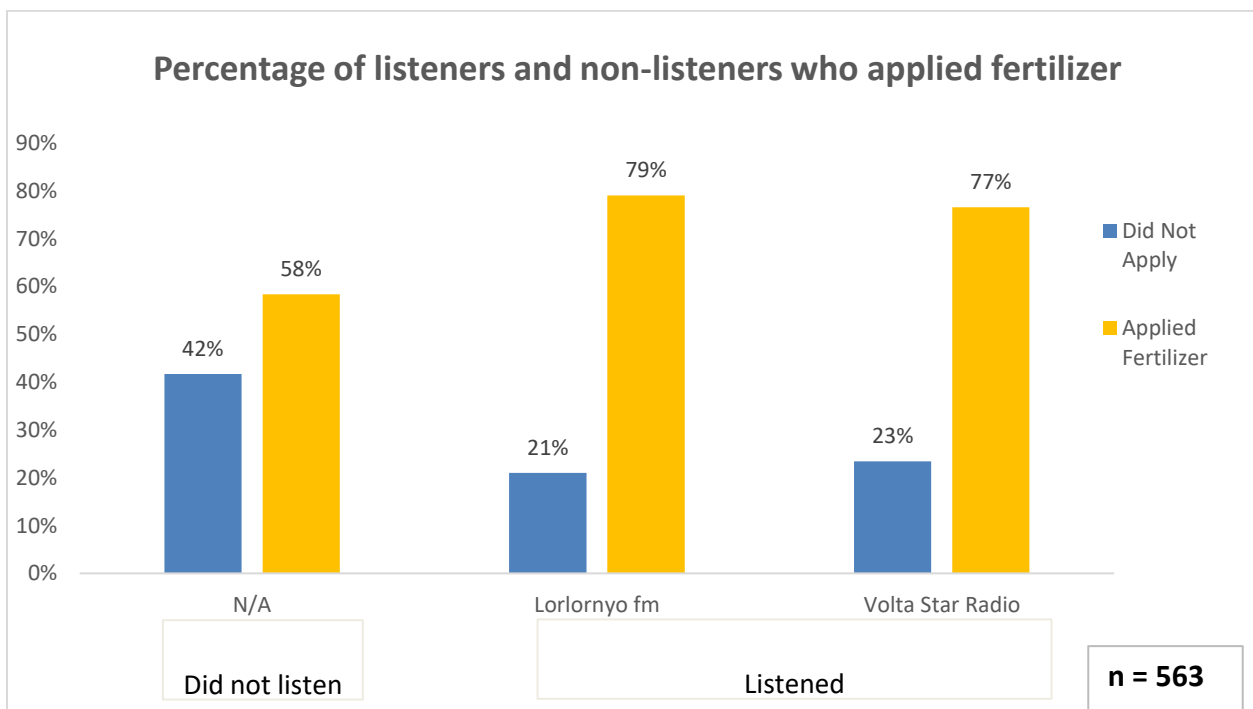
The results below reflect an SMS survey of the Volta region in southeast Ghana. The survey measured 563 respondents' answers to 21 different questions related to rice cultivation and their listenership to two distinct radio stations. The results below provide a comprehensive summary of data collected and key results of the November survey.

Detailed findings Volta Survey

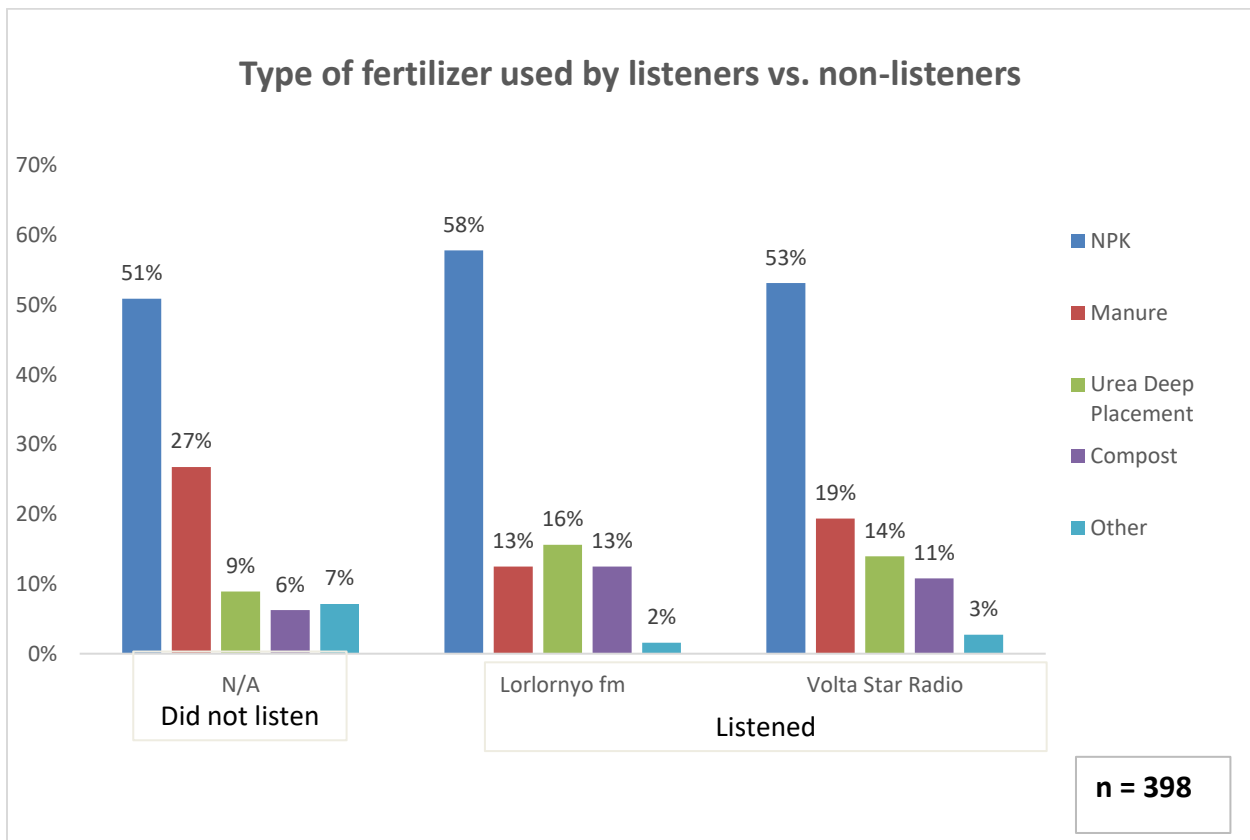
When asked what method used to plant their rice during the last season, a slight majority at 52% indicated broadcasting the seed, while 48% indicated row planting (the promoted practice on the radio). Data from planting method by radio station was split. For Lorlornyo FM, 52% of listeners surveyed used row planting while 48% indicated broadcasting the seed. Conversely, 53% of the listeners on Volta Star Radio used the broadcasting method while 47% used row planting. Similarly, 53% of non-listeners used the broadcasting method, while 47% used row planting.



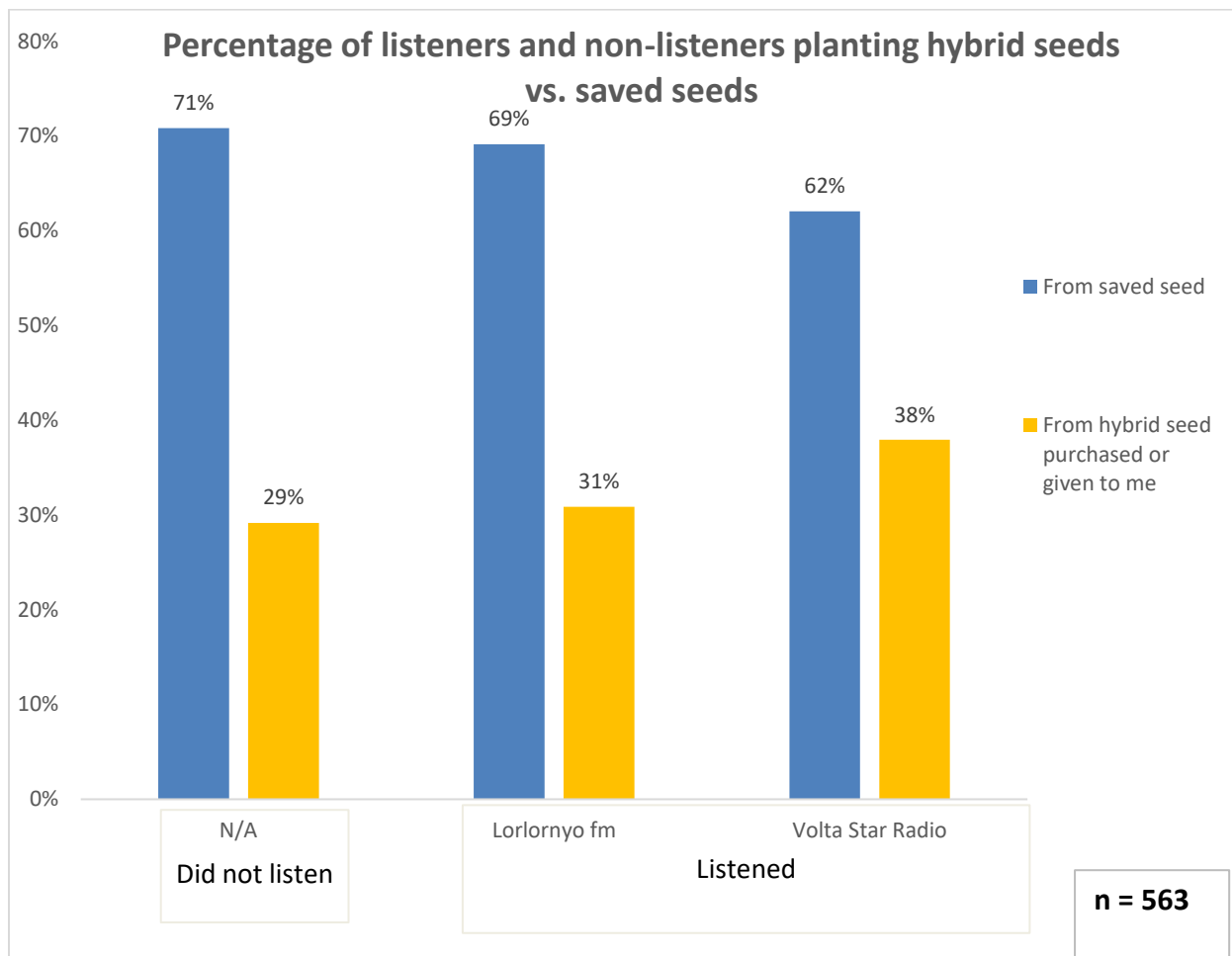
In addition to the type of method used for planting, 71% of respondents surveyed indicated they fertilized their crop (the promoted practice), while only 21% indicated that they did not use fertilizer. Approximately 75% of those surveyed using the broadcasting method used fertilizer, while 66% of those that used row planting used fertilizer.



For the respondents that use fertilizer (n=398), NPK was the dominant type of fertilizer for listeners and non-listeners alike. The chart below reflects the different types of fertilizer listeners of each radio station used. The use of urea deep placement and compost are the only two fertilizer types that have greater values among listeners compared to non-listeners. This is key since urea deep placement was a particular focus of the radio campaign. Approximately 16% of listeners of Lorlornyo FM and 14% of Volta Star Radio used urea deep placement compared 9% of non-listeners. Similarly, 13% of listeners of Lorlornyo FM and 11% of Volta Star Radio used compost compared 6% of non-listeners. The chart below reflects each fertilizer by listeners versus non-listeners.



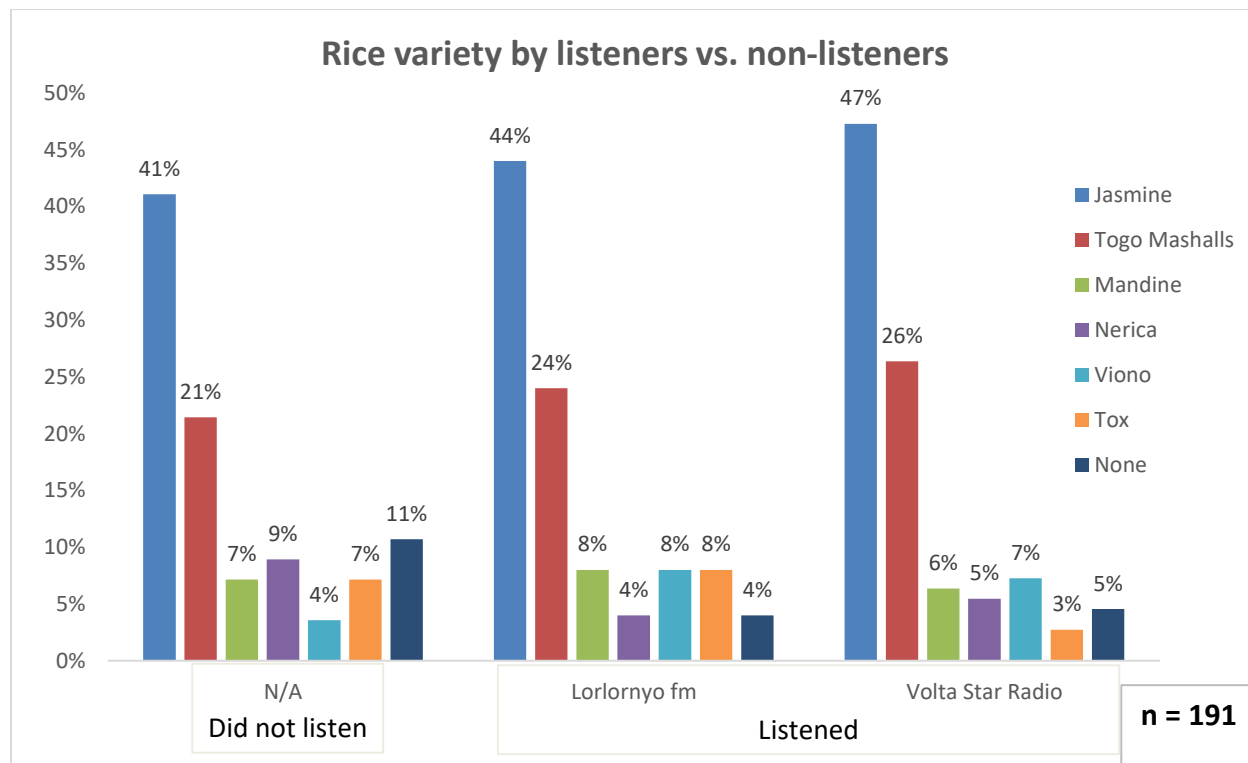
When asked “Where did you get your rice seed this most recent planting season? Reply with a number. 1) From saved seed 2) From hybrid seed purchased or given to me.” approximately 66% of those surveyed replied that they had saved their seeds, while 34% indicated they have used hybrid seeds purchased or given to them. For Lorlornyo FM, 69% of listeners surveyed saved their seeds from previous seasons and similarly 62% of listeners for Volta Star Radio saved their seeds. Approximately 71% of non-listeners also used saved seeds. The chart below displays the data gathered for the survey.



When the subset of 191 respondents that used hybrid seeds purchased or given to them were asked: “What type of improved rice variety did you use this most recent season? Reply with a number. Reply with a number. 1)Jasmine 2)Viono 3)Togo Marshal 4)Nerica 5)Tox 6)Mandine 7)None” those that used row planting as their method used Jasmine (51%) and Togo Mashall (20%) and the top two seed types. Respondents that used a broadcasting method similarly selected Jasmine (37%) and Togo Mashall (30%) as the top two types of seeds planted.

Type of rice variety	Broadcasting the seed	Row planting	Grand Total
Jasmine	37%	51%	45%
Togo Mashalls	30%	20%	25%
Mandine	6%	7%	7%
Nerica	7%	6%	6%
Viono	6%	6%	6%
Tox	6%	4%	5%
None	7%	6%	6%
Grand Total	100%	100%	100%

The chart below displays the type of rice variety used by radio station listeners and non-listeners. The top two variety type (jasmine & togo mashalls) have only a slight statistical difference between listeners and non-listeners.



Conclusion

Maize farmers in Brong Ahafo have used radio as a valuable source of information for both method, type of seed, storing their seed, as well as maintenance of their maize fields. PICS bag use was of particular note, with significant differences between listeners of all stations versus non-listeners. Similarly, listeners were more likely to weed their maize fields compared to non-listeners. Additionally, listeners across all radio stations were 25% more likely to dry their maize on tarpaulin compared to non-listeners. The data gathered in Brong Ahafo displays that listeners of Astar FM, Adars FM, Atoobu FM, and Radio BAR are more likely to use more efficient agricultural practices in terms of maintenance of maize fields as well as the storage and maintenance of their seeds.

Rice farmers had less pronounced correlation, but there still appears to be a correlation with the type of seed used as well as fertilizer regardless of the planting method. Listeners of Lorlornyo FM and Volta Star Radio were nearly 20% more likely to use fertilizer on their fields compared to non-listeners. Additionally, listeners of Lorlornyo FM were more likely to use row planting than non-listeners and listeners of Volta Star Radio.



Overall, there are some encouraging signs that the interactive radio program had a pronounced effect on the uptake of Scaling Seeds and Technologies Partnership (SSTP) technologies among listeners of the radio stations surveyed versus non-listeners.